



Task Order#: 4502835071
 Line Item: 10
 Site#: 70511625
 Site Location: NORMAN WELLS,NT
 Project #: SURFACE WATER RUNOFF
 Your C.O.C. #: 692778-01-01

Attention: Benjamin Fraser

Imperial Oil Resources Ltd.
 Bag Service 5000
 Norman Wells, NT
 CANADA XOE OVO

Report Date: 2023/05/19
 Report #: R3338442
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C335076

Received: 2023/05/17, 15:05

Sample Matrix: Water
 # Samples Received: 4

Analyses	Quantity	Laboratory Method	Analytical Method
Chloride/Sulphate by Auto Colourimetry	4	AB SOP-00020	SM24-4500-Cl/SO4-E m
Conductivity @25C	4	AB SOP-00005	SM 23 2510 B m
pH @25°C (1)	4	AB SOP-00005	SM 23 4500-H+B m
Phenols (4-AAP)	4	AB SOP-00088	EPA 9066 R0 m
Total Dissolved Solids (Filt. Residue)	4	AB SOP-00065	SM 23 2540 C m
Hydrocarbon by IR (Mineral oil & grease)	4	CAL SOP-00096	SM 23 5520C,F m
Total Suspended Solids (NFR)	4	AB SOP-00061	SM 24 2540 D m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard. All samples were analyzed within hold time unless otherwise flagged.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas endeavours to analyze samples as soon as possible after receipt.



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Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Jasbirjit Kaur, Customer Solutions Representative
Email: Jasbirjit.KAUR@bureauveritas.com
Phone# (403)219-3651

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Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Scott Cantwell, General Manager responsible for Alberta Environmental laboratory operations.



RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID			BQP188	BQP189		BQP190		
Sampling Date			2023/05/15 08:45	2023/05/15 09:00		2023/05/15 09:20		
COC Number			692778-01-01	692778-01-01		692778-01-01		
	UNITS	Criteria	CPF IMPOUND BASIN	LT-II	RDL	REFINERY IMPOUND BASIN	RDL	QC Batch
Misc. Inorganics								
Conductivity	uS/cm	-	370	450	2.0	620	2.0	A965818
pH	pH	6:9	7.84	7.68	N/A	7.89	N/A	A965815
Total Suspended Solids	mg/L	-	5.9	3.4	1.0	33	0.95	A965479
Total Dissolved Solids	mg/L	-	240	310	10	410	10	A965508
Anions								
Chloride (Cl)	mg/L	500	12	5.4	1.0	10	1.0	A965897
Misc. Organics								
Phenols	mg/L	0.14	<0.0015	<0.0015	0.0015	<0.0015	0.0015	A967317
Total Petroleum Hydrocarbon	mg/L	5	<2.0	<2.0	2.0	<2.0	2.0	A965228
No Fill	No Exceedance							
Grey	Exceeds 1 criteria policy/level							
Black	Exceeds both criteria/levels							
RDL = Reportable Detection Limit								
N/A = Not Applicable								

Bureau Veritas ID			BQP191		
Sampling Date			2023/05/15 09:10		
COC Number			692778-01-01		
	UNITS	Criteria	LT-II CULVERT	RDL	QC Batch
Misc. Inorganics					
Conductivity	uS/cm	-	460	2.0	A965818
pH	pH	6:9	7.97	N/A	A965815
Total Suspended Solids	mg/L	-	3.5	1.0	A965479
Total Dissolved Solids	mg/L	-	320	10	A965508
Anions					
Chloride (Cl)	mg/L	500	7.8	1.0	A965897
Misc. Organics					
Phenols	mg/L	0.14	<0.0015	0.0015	A967317
Total Petroleum Hydrocarbon	mg/L	5	<2.0	2.0	A965228
No Fill	No Exceedance				
Grey	Exceeds 1 criteria policy/level				
Black	Exceeds both criteria/levels				
RDL = Reportable Detection Limit					
N/A = Not Applicable					



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Bureau Veritas Job #: C335076

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Imperial Oil Resources Ltd.

Task Order#: 4502835071, Line Item: 10

Site#: 70511625

Site Location: NORMAN WELLS,NT

Project #: SURFACE WATER RUNOFF

TEST SUMMARY

Bureau Veritas ID: BQP188
Sample ID: CPF IMPOUND BASIN
Matrix: Water

Collected: 2023/05/15
Relinquished: 2023/05/15
Received: 2023/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride/Sulphate by Auto Colourimetry	KONE	A965897	N/A	2023/05/18	Tyler Orr
Conductivity @25C	COND	A965818	N/A	2023/05/18	Jeanette Chavol Melo
pH @25°C	AT/ALK	A965815	N/A	2023/05/18	Jeanette Chavol Melo
Phenols (4-AAP)	TECH/4AAP	A967317	N/A	2023/05/19	Ming Dong
Total Dissolved Solids (Filt. Residue)	BAL	A965508	2023/05/18	2023/05/18	Eliza Javier Herrera
Hydrocarbon by IR (Mineral oil & grease)	IR	A965228	2023/05/18	2023/05/19	Chuhan Huang
Total Suspended Solids (NFR)	BAL	A965479	2023/05/18	2023/05/18	Silkiben Patel

Bureau Veritas ID: BQP189
Sample ID: LT-II
Matrix: Water

Collected: 2023/05/15
Relinquished: 2023/05/15
Received: 2023/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride/Sulphate by Auto Colourimetry	KONE	A965897	N/A	2023/05/18	Tyler Orr
Conductivity @25C	COND	A965818	N/A	2023/05/18	Jeanette Chavol Melo
pH @25°C	AT/ALK	A965815	N/A	2023/05/18	Jeanette Chavol Melo
Phenols (4-AAP)	TECH/4AAP	A967317	N/A	2023/05/19	Ming Dong
Total Dissolved Solids (Filt. Residue)	BAL	A965508	2023/05/18	2023/05/18	Eliza Javier Herrera
Hydrocarbon by IR (Mineral oil & grease)	IR	A965228	2023/05/18	2023/05/19	Chuhan Huang
Total Suspended Solids (NFR)	BAL	A965479	2023/05/18	2023/05/18	Silkiben Patel

Bureau Veritas ID: BQP190
Sample ID: REFINERY IMPOUND BASIN
Matrix: Water

Collected: 2023/05/15
Relinquished: 2023/05/15
Received: 2023/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride/Sulphate by Auto Colourimetry	KONE	A965897	N/A	2023/05/18	Tyler Orr
Conductivity @25C	COND	A965818	N/A	2023/05/18	Jeanette Chavol Melo
pH @25°C	AT/ALK	A965815	N/A	2023/05/18	Jeanette Chavol Melo
Phenols (4-AAP)	TECH/4AAP	A967317	N/A	2023/05/19	Ming Dong
Total Dissolved Solids (Filt. Residue)	BAL	A965508	2023/05/18	2023/05/18	Eliza Javier Herrera
Hydrocarbon by IR (Mineral oil & grease)	IR	A965228	2023/05/18	2023/05/19	Chuhan Huang
Total Suspended Solids (NFR)	BAL	A965479	2023/05/18	2023/05/18	Silkiben Patel

Bureau Veritas ID: BQP191
Sample ID: LT-II CULVERT
Matrix: Water

Collected: 2023/05/15
Relinquished: 2023/05/15
Received: 2023/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride/Sulphate by Auto Colourimetry	KONE	A965897	N/A	2023/05/18	Tyler Orr
Conductivity @25C	COND	A965818	N/A	2023/05/18	Jeanette Chavol Melo
pH @25°C	AT/ALK	A965815	N/A	2023/05/18	Jeanette Chavol Melo
Phenols (4-AAP)	TECH/4AAP	A967317	N/A	2023/05/19	Ming Dong
Total Dissolved Solids (Filt. Residue)	BAL	A965508	2023/05/18	2023/05/18	Eliza Javier Herrera
Hydrocarbon by IR (Mineral oil & grease)	IR	A965228	2023/05/18	2023/05/19	Chuhan Huang



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Task Order#: 4502835071, Line Item: 10
Site#: 70511625
Site Location: NORMAN WELLS,NT
Project #: SURFACE WATER RUNOFF

TEST SUMMARY

Bureau Veritas ID: BQP191
Sample ID: LT-II CULVERT
Matrix: Water

Collected: 2023/05/15
Relinquished: 2023/05/15
Received: 2023/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Suspended Solids (NFR)	BAL	A965479	2023/05/18	2023/05/18	Silkiben Patel



GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	6.3°C
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Criteria: Measurement of Uncertainty has not been accounted for when stating conformity to the selected criteria, where applicable.

Results relate only to the items tested.



QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A965228	CHA	Method Blank	Total Petroleum Hydrocarbon	2023/05/19	<2.0		mg/L	
A965479	SKP	Method Blank	Total Suspended Solids	2023/05/18	<1.0		mg/L	
A965508	EH2	Method Blank	Total Dissolved Solids	2023/05/18	<10		mg/L	
A965818	JVM	Method Blank	Conductivity	2023/05/18	<2.0		uS/cm	
A965897	TOR	Method Blank	Chloride (Cl)	2023/05/18	<1.0		mg/L	
A967317	MDO	Method Blank	Phenols	2023/05/19	<0.0015		mg/L	
A965228	CHA	LCS	Total Petroleum Hydrocarbon	2023/05/19		94	%	70 - 130
A965479	SKP	LCS	Total Suspended Solids	2023/05/18		102	%	80 - 120
A965508	EH2	LCS	Total Dissolved Solids	2023/05/18		99	%	80 - 120
A965815	JVM	LCS	pH	2023/05/18		100	%	97 - 103
A965818	JVM	LCS	Conductivity	2023/05/18		101	%	90 - 110
A965897	TOR	LCS	Chloride (Cl)	2023/05/18		100	%	80 - 120
A967317	MDO	LCS	Phenols	2023/05/19		107	%	80 - 120

LCS: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.



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Project #: SURFACE WATER RUNOFF

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Gita Pokhrel, Laboratory Supervisor

Suwan (Sze Yeung) Fock, B.Sc., Scientific Specialist



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Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.



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CPA1
**EXXONMOBIL/IMPERIAL OIL - BUREAU VERITAS
CHAIN-OF-CUSTODY RECORD
ANALYSIS REQUESTED**

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C of C # 692778-01-01



INVOICE INFORMATION				REPORT INFORMATION								
Company Name: IMPERIAL OIL RESOURCES N.W.T LIMITED				Company Name: Imperial Oil Resources Ltd.								
Contact Name: Chad Thompson				Contact Name: Benjamin Fraser								
Address: BAG SERVICE 5000 NORMAN WELLS NT X0E 0V0				Address: Bag Service 5000 Norman Wells NT X0E 0V0								
Email: benjamin.fraser@esso.ca				Email: benjamin.fraser@esso.ca								
Phone: (587) 476-2878				Phone: (587) 476-2878								
Sampler Name (Print): <i>Brian Vanderzwan</i>				Consultant Project #: Surface Water Runoff								
FIELD SAMPLE ID	MATRIX				SAMPLING		FIELD FILTERED & PRESERVED	LAB FILTRATION REQUIRED	NORMAN WELLS #6			
	GROUND WATER	SURFACE WATER	SOIL	OTHER	# CONTAINERS	DATE (YYYY/MM/DD)				TIME (24 HR)		
1. <i>CPF IMPOUND BASIN</i>				<input checked="" type="checkbox"/>	4	2023/05/15	08:45	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
2. <i>LT-11</i>				<input checked="" type="checkbox"/>	4	2023/05/15	09:00	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
3. <i>REFINERY IMPOUND BASIN</i>				<input checked="" type="checkbox"/>	4	2023/05/15	09:20	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
4. <i>LT-11 CULVERT</i>				<input checked="" type="checkbox"/>	4	2023/05/15	09:10	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
5.												
6.												
7.												
8.												
9.												
10.												
IOL SITE LOCATION: Norman Wells, NT				REGULATORY CRITERIA / DETECTION LIMITS:				SPECIAL INSTRUCTIONS:		# JARS USED AND NOT SUBMITTED: Enter N/A for Water		
IOL PROJECT # (if applicable): N/A				<input type="checkbox"/> Alberta Tier I <input type="checkbox"/> CDWG <input type="checkbox"/> SEQG (SK) <input type="checkbox"/> NoSC (SK) <input type="checkbox"/> CCME <input checked="" type="checkbox"/> Other: <i>LICENSE SPECIFIC</i>						TURNAROUND TIME Standard (5 days) <input type="checkbox"/> Rush (3 days) <input checked="" type="checkbox"/> (2 days) <input type="checkbox"/> (1 day) <input type="checkbox"/> (same day) <input type="checkbox"/> Date Required:		
BUREAU VERITAS TASK ORDER # OR SERVICE ORDER # + LINE ITEM: 4502835071-10 <i>NO# 30511625</i>				COOLER ID: <i>UAC</i>				COOLER ID:		Date Required:		
SEAL PRESENT	<input checked="" type="checkbox"/>	TEMP °C	5	5	9 ₃	SEAL PRESENT	<input checked="" type="checkbox"/>	TEMP °C	1	2	3	
SEAL INTACT	<input checked="" type="checkbox"/>	COOLING MEDIA PRESENT			SEAL INTACT	<input checked="" type="checkbox"/>	COOLING MEDIA PRESENT			LAB USE ONLY		
* RELINQUISHED BY: <i>Brian Vanderzwan</i>				DATE:	2023/05/15	TIME (24 HR):	10:00	RECEIVED BY:	DATE:	2023/05/17	TIME (24 HR):	15:05
1. <i>Brian Vanderzwan</i>				2. <i>Nir Kamal</i>				BUREAU VERITAS JOB # <i>C335076</i>				
2. <i>Nir Kamal</i>				3. <i>Nir Kamal</i>				SAMPLES				
3. <i>Nir Kamal</i>				LABELED BY: <i>JO</i>				VERIFIED BY: <i>EAS</i>				